

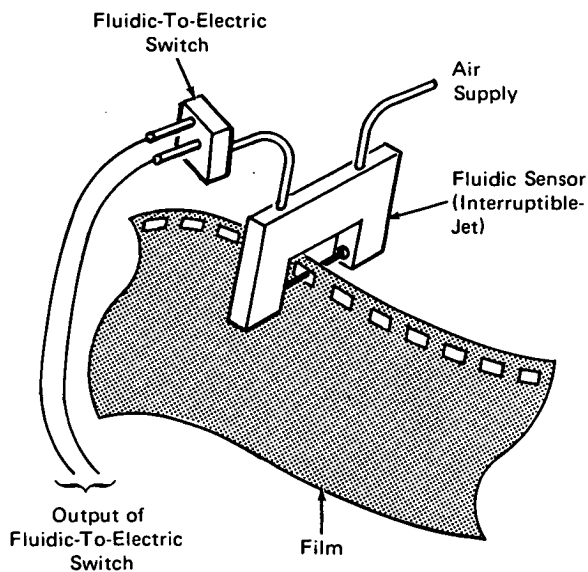
# NASA TECH BRIEF

## Manned Spacecraft Center

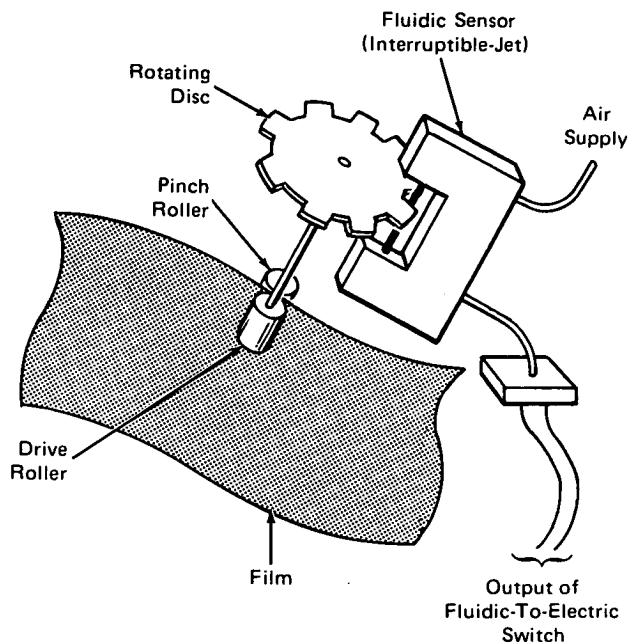


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### Indexing Film with a Fluidic Sensor



Perforated Film



Non-perforated Film

#### The problem:

In order to measure the travel of film, rotating sprockets (for perforated film) and pinch rollers (for non-perforated film) are mechanically coupled to counting devices. This method requires changing the sprocket when the film size is changed and places a drag on the film, especially when pinch rollers are used.

#### The solution:

A fluidic sensor is used to measure the passage of the film without mechanical contact with the counting device. The same sensor system may be used for different sizes of film.

#### How it's done:

A fluidic sensor electrically records interruptions in an air stream (see figure). This system has two fluidic sensors: one measures the passage of perforated film and the other, the passage of nonperforated film. In one sensor the perforated edge of the film moves through the jet of air. As the film between perforations interrupts the air stream, a signal is generated. Since each frame has a certain number of perforations, the frames can be counted by setting an accumulating register to the number of perforations per frame.

In order to count the frames of nonperforated film, the film is run under a pinch roller, which is not connected directly to the counter as in conventional

(continued overleaf)

systems. The roller has a shaft attached to a disc. Portions of the edge of the disc are cut out, and as it rotates, the edge of the disc passes through the air stream of the second sensor. Each time a tooth on the disc interrupts the air stream in the sensor, a millimeter of film travel is recorded.

The entire assembly can be mounted on a suitable track to allow positioning and detenting of the indicator assembly at the proper location for each film size.

**Patent status:**

No patent action is contemplated by NASA.

Source: Anthony N. Maciel, Jr. of  
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under contract to  
Manned Spacecraft Center  
(MSC-14117)

**Note:**

Requests for further information may be directed to:

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